HYDRO-GAZ-MED

POLISH MANUFACTURER OF MEDICAL EQUIPMENT

Established in 1971

PNEUMAT
Panel centralnego zasilania
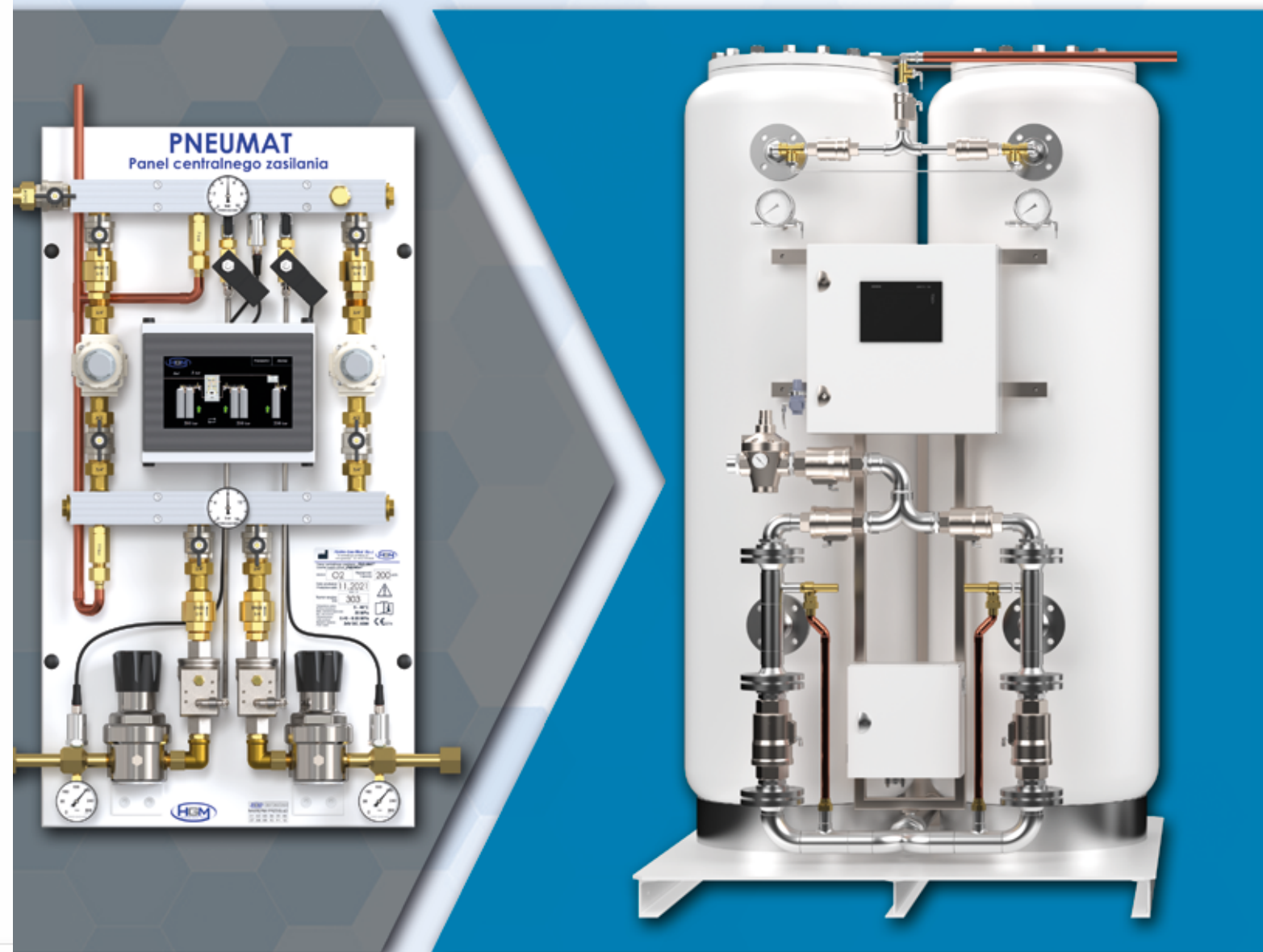
CATALOG
2021

About us

Our company has been dealing with medical gas pipeline systems since 1971, for over 18 years we have been producing medical gas pipeline systems components. For many years we have been consumer of products of other producers. This allowed us to gain lot of experiences either good and bad. At the moment as a producer we have done our best to improve and remove all the problems we have encountered. During all these years we wanted to offer you the best possible, so we ALWAYS use the highest quality materials, that is why we cooperate with well known producers like FRITZ STEPHAN Medizintechnik Gmbh, GREGGERSEN Gasetechnik Gmbh, OXYMAT A/S.
In the field of medical gas pipeline systems we modernize existing systems or we can design, build, test and commission a new one.

Here is a short history of our company:
- since 2003 we are installing oxygen concentrator systems in hospitals in Poland (we were first to do this)
- since 2006 we are producing our own valve boxes, to this day we sold over 600 units;
- since 2008 we are producing our own oxygen concentrator system, to this day almost 30 systems installed;
- since 2011 we are producing our own PNEUMAT switchover system for high pressure cylinder supply systems, to this day almost 100 systems sold;
- since 2013 we started to offer gas consumption measurement in our valve boxes;
- since 2014 we offer our own high-end central monitoring system for medical gas system;
- since 2015 we are producing small vacuum plant for small hospitals & clinics;
- along with above we are also producing under plaster and on wall panels with sets of gas outlets.

In this catalog we want to present you the best we have to offer. Our products have been checked and tested in many ways by our demanding clients and meet the strict requirements of TÜV Nord Notified Body.
We execute medical gas pipeline systems according to the newest european medical standards and MD-D/93/42

European Funds
Smart Growth

Republic of Poland

European Union
European Regional Development Fund

OUR PRODUCTS IN HOSPITAL...
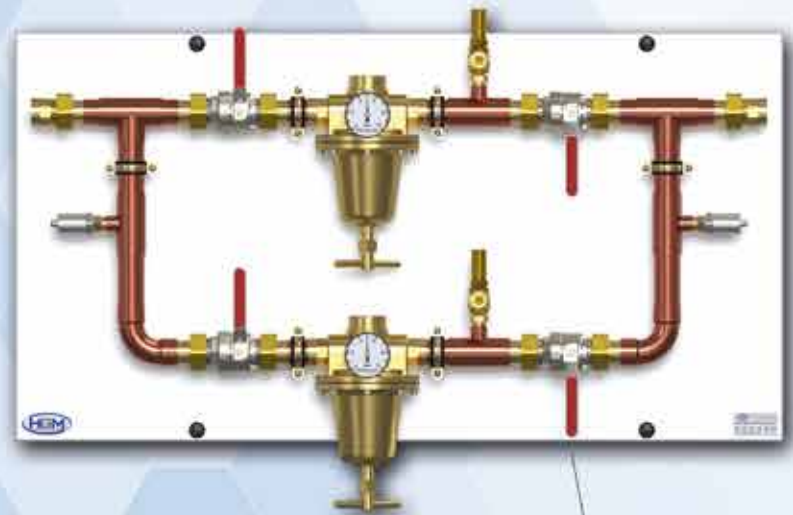
Reduction set
p. 9
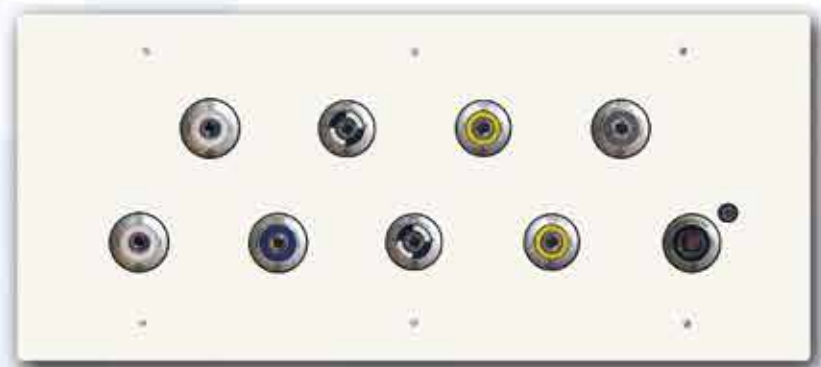
Gas outlets
p. 20

Gas outlet panel "SPG"
p. 21

ZAWORY GAZÓW MEDYCZNYCH

Flow monitor
p. 14

ZAWORY GAZÓW MEDYCZNYCH

Area valve box "SZI"
p. 11

POWER   ALARM

OFF   ON

Gas analyzer
p. 18

Sygnalizator gazów medycznych
Section alarm unit

HYDRO - GAZ - MED

Remote alarm units
p. 15

Central alarm unit
p. 16

OXYKON®
oxygen concentrator
p. 1

2-stage
reserve panel
p. 6

Switchover system for cylinder supply "PNEUMAT"
p. 2
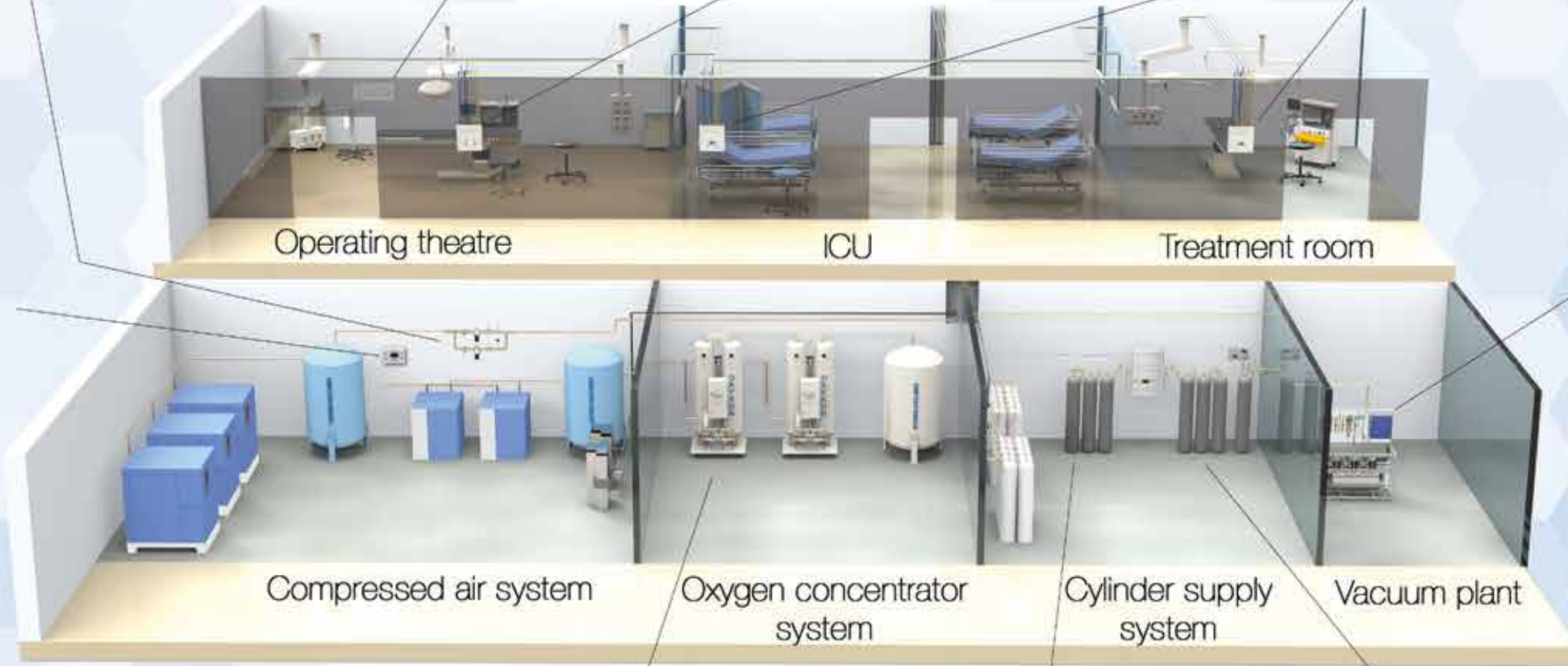
Operating theatre | ICU | Treatment room

Compressed air system | Oxygen concentrator system | Cylinder supply system | Vacuum plant

Vacuum plant "HGM VAC"
p. 10

Sample projects

Container with self-lifting system

Oxygen concentrator and cylinder filling system in container

Medical container system

Oxygen control panel

Oxygen modular concentrators system

25

Oxygen concentators for medical gas pipeline system

OXYKON® oxygen concentrator delivers "medical oxygen 93" by filtering compressed air and separating oxygen from other air components (including chemical weapons) to achieve up to 96% oxygen concetration. Because oxygen concentrator needs compressed air to deliver oxygen it allows to use the surplus compressed air as a medical air. This allows to eliminate extra costs of installing separate compressed air system. To minimize installation costs even more it can use compressed air from an existing compressed air system in hospital to deliver oxygen. Taking such sollution at the planning stage of investment it allows to save extra costs. At the end it can save up to 80% of oxygen therapy costs.

We are the first in Poland who have developed and implemented this system in Health Care Facilities. This economic system guarantees self-sufficiency and optimally uses available area.

Oxygen supply system controller

▶ concentrators pressure monitoring ▶ the status of concentrators
▶ oxygen purity monitoring by means of paramagnetic sensor
▶ oxygen oncentration in environment monitoring ▶ flow monitoring
▶ room temperature monitoring ▶ oxygen outlet pressure monitoring
▶ compressor pressure monitoring ▶ integration with SMS notification system

OXYKON® DUO concentrator

Features:
▶ up to 20 l/min @ 5 bar
▶ oxygen purity up to 96%
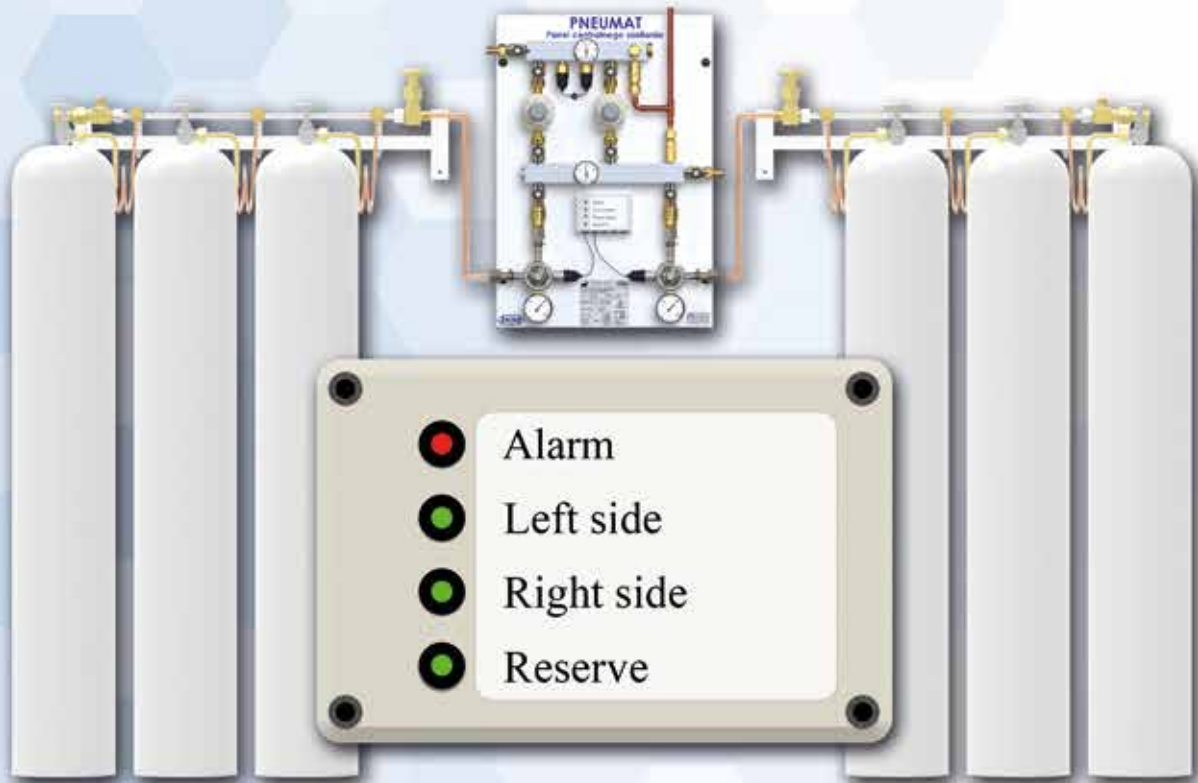▶ gas outlet in EU standard
▶ small and light
▶ energy efficient

Application:
▶ anaesthesia machines
▶ oxygen supply in field hospitals
▶ emergency respond teams
▶ military field hospitals
▶ one-day surgery clinics

OXYKON® mobile concentrator

Switchover system for cylinder supply "PNEUMAT I"

PNEUMAT I as 2 cylinder banks supply system

PNEUMAT
Panel centralnego zasilania

- 🔴 Alarm
- 🟢 Left side
- 🟢 Right side
- 🟢 Reserve

PNEUMAT
Panel centralnego zasilania

Alarm
Lewa strona
Prawa strona
Rezerwa

Sygnalizator gazów medycznych
Section alarm unit

```
-OK-    1/0100
LEFT   OK    RESERVE OK
RIGHT  OK
NET    OK

   Remote alarm
    unit for
     PNEUMAT
```

WYCISZENIE

CE   HYDRO - GAZ - MED   TEST

Remote alarm unti

Dimmensions
400x700x150
(WxHxD)

Capacity:	max. 30 m³/h
Inlet pressure:	200 bar (2900 psi)
Outlet pressure:	4-6 bar (58-87 psi)

Automatic change-over (pneumatically)
MODBUS RTU
Working modes:
▶ 2 cylinder banks
▶ 2 cylinder banks + 1 reserve bank
▶ Concentrator + 2 cylinder banks
▶ Tank with liquid gas + 2 cylinder banks
▶ Air compressor + 2 cylinder banks
Class IIb medical device.

Switchover system for cylinder supply "PNEUMAT II"

PNEUMAT II as 2 cylinder banks + reserve bank supply system

PNEUMAT
Panel centralnego zasilania

Alarm unit

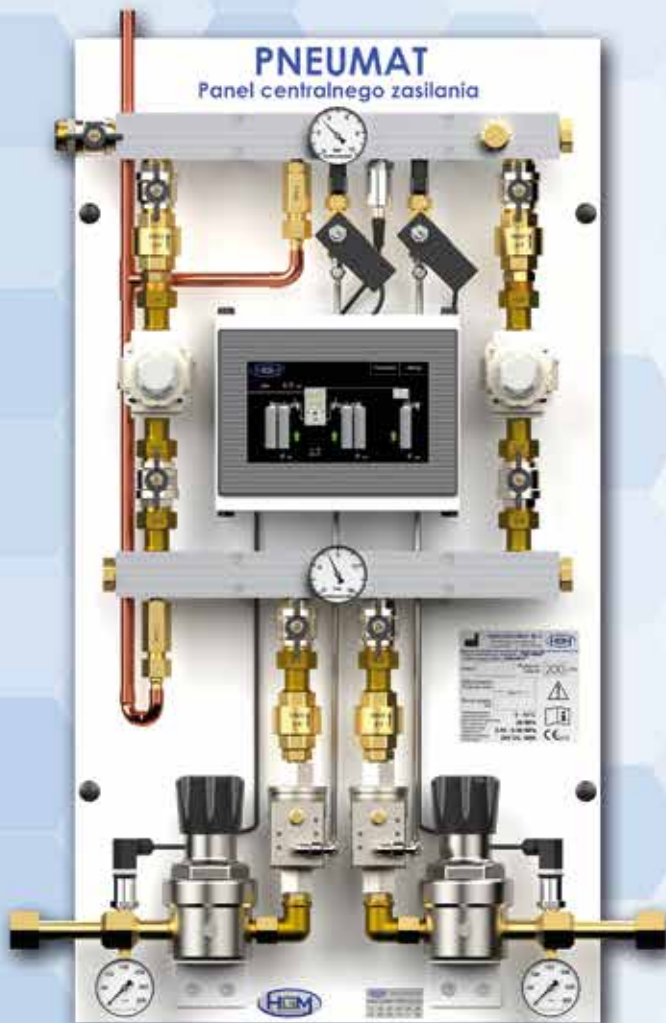Dimmensions
450x800x200
(WxHxD)

Capacity:	max. 80 m³/h
Inlet pressure:	200 bar (2900 psi)
Outlet pressure:	4-6 bar (58-87 psi)

Automatic change-over (electronically)
MODBUS RTU, MODBUS TCP/IP
Working modes:
▸ 2 cylinder banks
▸ 2 cylinder banks + 1 reserve bank
▸ Concentrator + 2 cylinder banks
▸ Tank with liquid gas + 2 cylinder banks
▸ Air compressor + 2 cylinder banks
Class IIb medical device.

Switchover system for cylinder supply "PNEUMAT III"

PNEUMAT III as tank with liquid oxygen + 2 cylinder banks supply system

LIQUID
OXYGEN
TANK

PNEUMAT
Panel centralnego zasilania

Alarm unit

Dimmensions
400x850x150
(WxHxD)

Capacity: 200 m³/h
Inlet pressure: 200 bar (2900 psi)
Outlet pressure: 4-6 bar (58-87 psi)
Automatic change-over (electronically)
MODBUS RTU, MODBUS TCP/IP
Working modes:
  ▸ 2 cylinder banks
  ▸ 2 cylinder banks + 1 reserve bank
  ▸ Concentrator + 2 cylinder banks
  ▸ Tank with liquid gas + 2 cylinder banks
  ▸ Air compressor + 2 cylinder banks
Class IIb medical device.
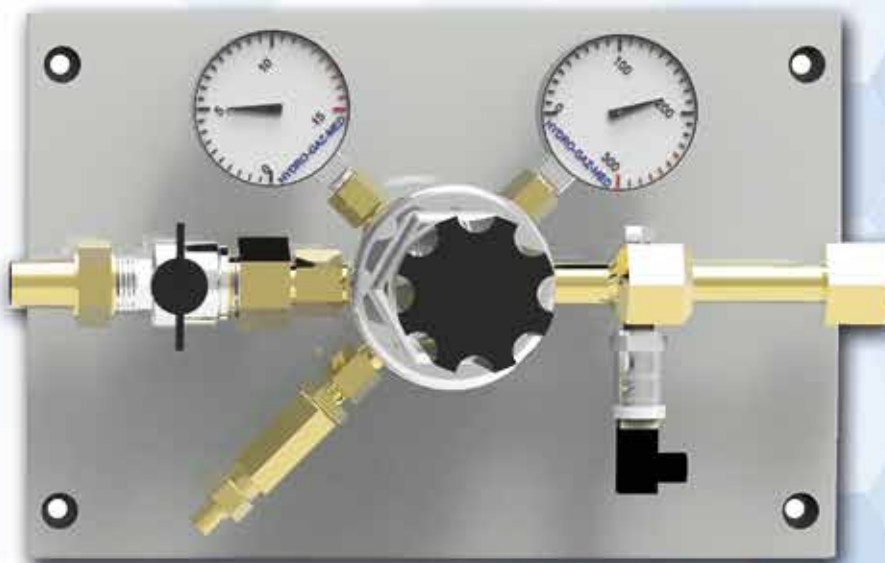
1-stage reserve supply panel "PNEUMAT"

Reserve supply panel PNEUMAT 50

Reserve supply for switchover system
Capacity: 50 m³/h
Inlet pressure: 200 bar (2900 psi)
Outlet pressure: 7 bar (101 psi)

Dimmensions
350x280x150
(WxHxD)

Reserve supply panel PNEUMAT 200

Reserve supply for switchover system
Capacity: 200 m³/h
Inlet pressure: 200 bar (2900 psi)
Outlet pressure: 7 bar (101 psi)

Dimmensions
350x280x150
(WxHxD)

2-stage reducer panel for high pressure cylinder supply

Function

To reduce high pressure from cylinders to the level required by user in medical pipeline system. Main purpose is to work as a reserve source for medical gases.

Technical data:

2-stage pressure reduction, high pressure analog sensor or contact switch, shut-off valve, safety valve.

Efficiency:

Flow:	50 m³/h
Inlet pressure:	max. 200 bar (2900 psi)
Outlet pressure:	5 bar (72 psi)

Connections:

inlet:	G ½"
outlet:	copper pipe 15 mm

Medium:	oxygen, nitrous oxide, carbon dioxide, air, nitrogen, argon

High pressure manifold system

Technical data:
- up to 10 cylinders in single manifold
- shut off valve
- exhaust valve
- non-return valves for each cylinder
- gas specific connections

Gas coding colours:

White - Oxygen

Black - Compressed air

Grey - Carbon Dioxide

Blue - Nitrous Oxide

Manifolds delivered along with headers.
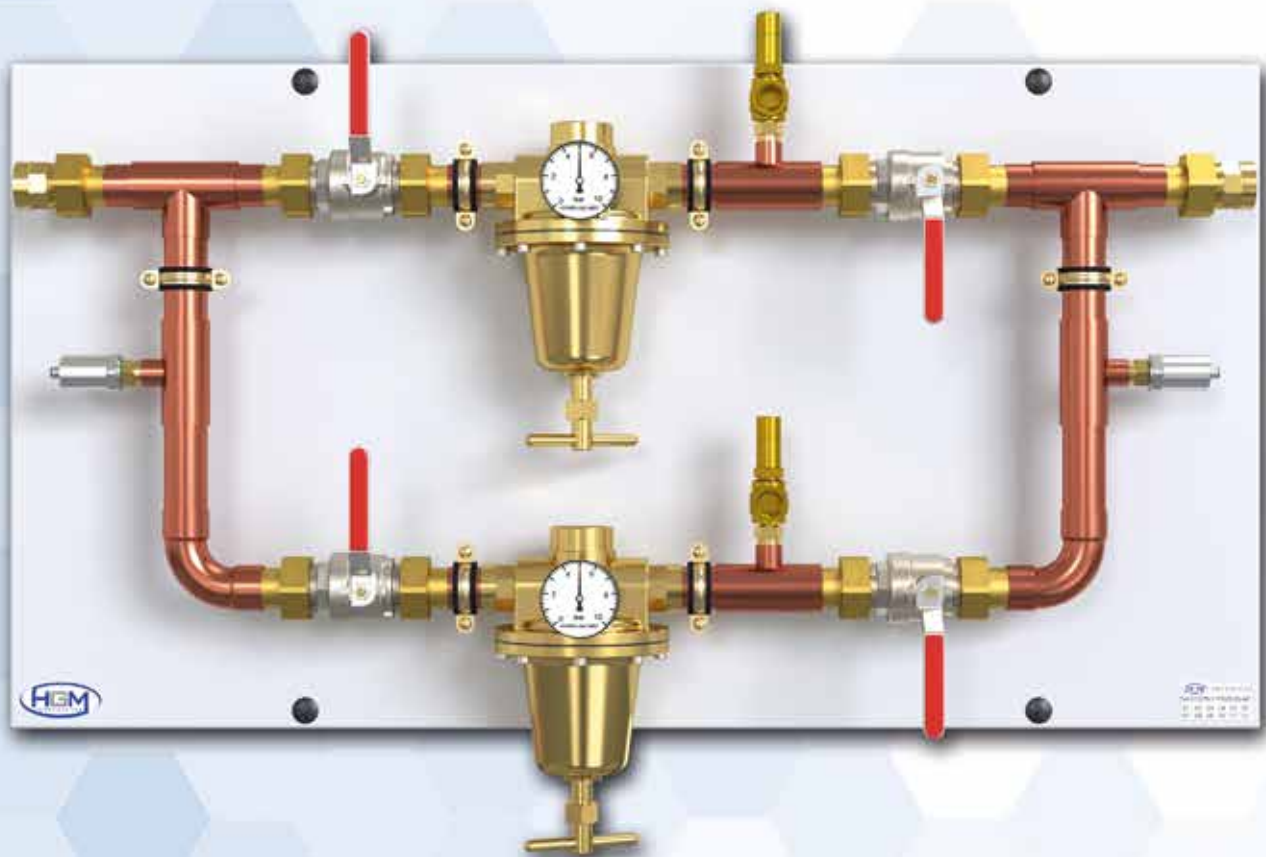

2 cylinder header

One cylinder header

Technical data:
- maximum inlet pressure 200 bar (2900 psi)
- easily adjustable pigtail shape
- inlet/outlet connections according to gas coding standards

Technical data:
- maximum inlet presure 200 bar (2900 psi)
- lenght ~80cm
- inlet/outlet connections according to gas coding standards

7

Reducing sets for liquid oxygen tank

Function

To reduce pressure of liquid oxygen from tank to a level required by user.

Technical data:

- ▶ 2 parallel pressure reducers;
- ▶ brass ball valves with chrome body and stainless steel ball;
- ▶ 2 safety valves;
- ▶ pressure analog sensor;

Capacity:

- ▶ max inlet pressure 25 bar (362 psi);
- ▶ outlet pressure 1-10 bar (14-140 psi);
- ▶ max flow (28mm pipe) 200m³;
- ▶ ambient temperature -20°C do +40°C;
- ▶ safety valve to 11 bar (154 psi).

Connections:

- ▶ copper pipe size 28 mm;

Reducing sets for compressed medical gases

Function

To reduce pressure of compressed medical gases to a level required by user.
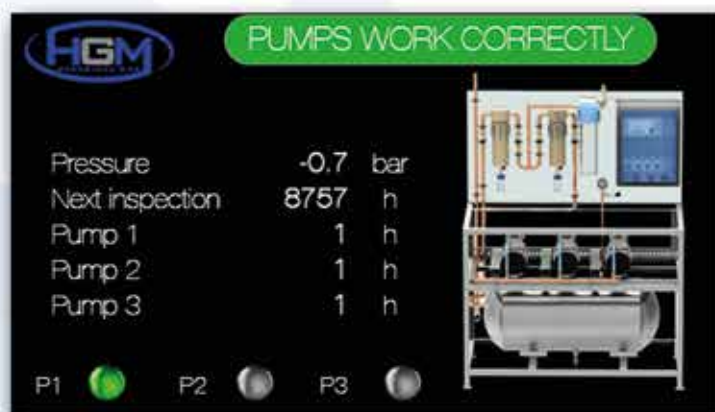
Technical data:

- ▸ 2 parallel pressure reducers;
- ▸ brass ball valves with chrome body and stainless steel ball;
- ▸ pressure sensor or 2 pressure switches;
- ▸ max inlet pressure 16 bar (232 psi);
- ▸ outlet pressure 1-10 bar (14-145 psi);
- ▸ max flow 50m³ or 200m³
- ▸ ambient temperature -20°C do +40°C;
- ▸ safety valve to 7 bar (101 psi) or 11 bar (159 psi);
- ▸ standard outlet pressure 5 (72 psi) and 8 bar (116 psi), others on demand.

Connections:

- ▸ copper pipe size 15 to 22 mm;

Compact vacuum plant "HGM VAC"

PUMPS WORK CORRECTLY

Pressure	-0.7	bar
Next inspection	8757	h
Pump 1	1	h
Pump 2	1	h
Pump 3	1	h

P1 ● P2 ○ P3 ○

EQUIPMENT
- ▶ Vacuum pump — 3 pcs
- ▶ Bacteria filter — 2 pcs
- ▶ Secretion collecting unit — 1 piece
- ▶ Electronic control — 1 piece
- ▶ Vacuum tank — 110 L
- ▶ **MODBUS RTU**

WORKING CONDITIONS
- ▶ ambient temperature: 5-35 °C
- ▶ atmospheric pressure : 900-1050 hPa
- ▶ relative humidity : 20-90 %

PURPOSE
- ▶ Supports up to 10 vacuum outlets
- ▶ Operating room
- ▶ Postoperative room
- ▶ 2 beds ICU

TECHNICAL DATA:

Parameter	Value
Capacity at atmospheric pressure 1024 hPa (m³/h)	18 m³/h
Capacity at -0,5 bar (m³/h)	6 m³/h
Tank volume (L)	110
Pump type	3x HMGV-1
Motor power (kW)	0,75
Noise level (dB)	62
Inlet port, copper pipe (mm)	22
Exhaust, copper pipe (mm)	22
Weight (kg)	~130
Max vacuum (relative pressure)	-0,7 bar (-10 psi)
Power supply	3x2,5 mm², 230V, 12A
Dimension (mm)	1500x1300x500

Area valve boxes "SZI"

SZI-6
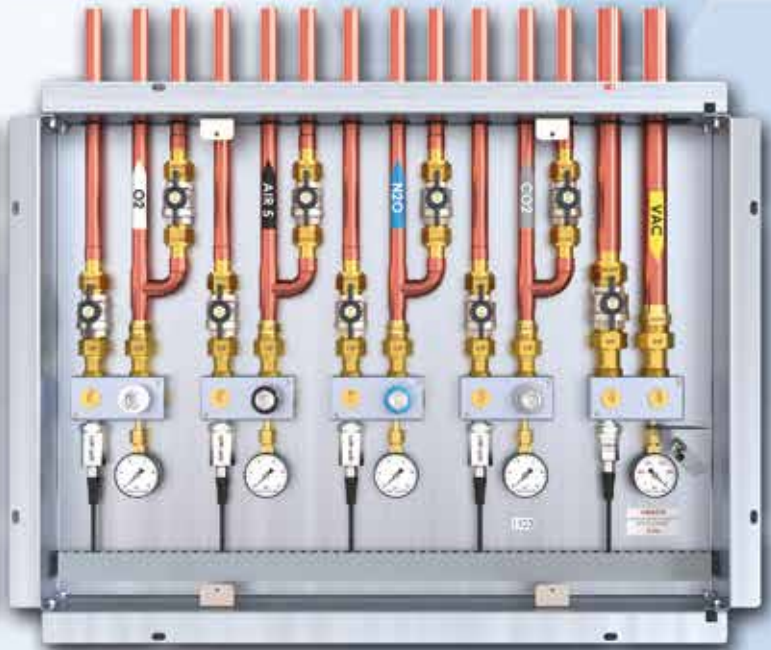
SZI-5-OP

for Operating theatres

SZI-3

ZAWORY GAZÓW MEDYCZNYCH

Sygnalizator gazów medycznych
Section alarm unit

```
-OK-   1/0550      bar
O2     4.9   CO2   4.9
N2O    4.9   N2    4.9
AIR5   4.9   VAC  -0.8
       Section alarm
       unit for
       medical gases
```

WYCISZENIE

TEST

HYDRO - GAZ - MED

LED indicator:
● OK state
● alarm

Test / mute button

Section alarm unit

Area valve boxes "SZI"

Main function of valve box is to shut-off and to monitor pressure of medical gases and vacuum in wards, operating theatres, intensive care units.

Basic parameters :
- from 1 up to 6 gases in one box
- shut-off valves for each gas and vacuum
- shut-off valves for ceiling pendants (SZI-OP version)
- pressure sensors for each medium
- gauge for each gas
- physical separation
- drainage
- emergency supply point type NIST/DIN/AGA
- alarm unit with LCD display
- max pipe diameter for vacuum is 28 mm
- MODBUS RTU (optional)

Technical data:

Housing made from zinc plated steel, standard color for cover is RAL 9010, equipped in emergency opening, emergency supply point, sensors, ball valves, inlet / outlet from top, from 1 up to 6 gases in single housing.

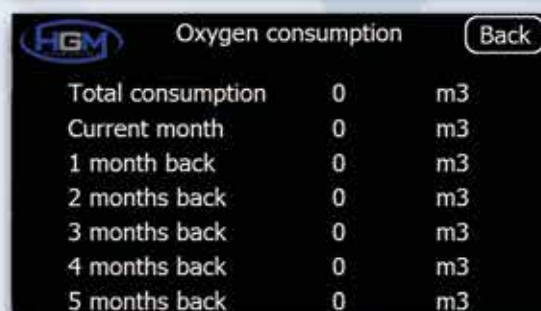| *Pressure*:	compressed gases	0 - 10 bar (145 psi)
	vacuum	0 - -0.9 bar (-13 psi)

Alarms:	*compressed gases 5 bar*	▶ low pressure 4 bar (58 psi)
		▶ high pressure 6 bar (87 psi)
	compressed gases 8 bar	▶ low pressure 6,5 bar (94 psi)
		▶ high pressure 9,5 bar (137 psi)
	vacuum	▶ pressure -0,4 bar (-5.8 psi)

Class IIb medical device.

Available valve boxes:

TYPE	Weight	Dimensions (LxWxH)
SZI-1	5,5kg	350x90x460
SZI-2	6,1kg	350x90x460
SZI-3	7,3kg	350x90x460
SZI-4	10,5kg	350x90x460
SZI-5	14,2kg	560x90x480
SZI-6	15,4kg	560x90x480

Area valve box with flow meter "SZI-P"

Function
Designed to monitor pressure and flow rate of medical gases.
It can sum up total consumption of gas, also has history for last 6 months and every month is displayed separately.

Technical data:

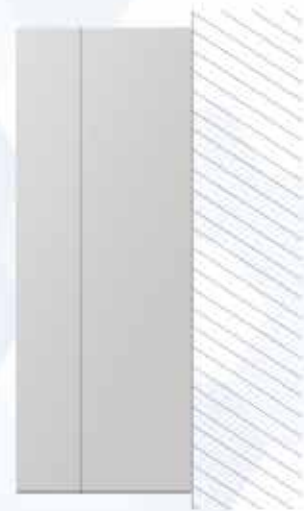|	
Type:	SZI-P
Working pressure:	compressed gases 0 - 8 bar (0-116 psi)
Dimensions:	350x460x90 (WxHxD)
Power supply:	24V DC, 1A
MODBUS RTU, MODBUS TCP/IP	

Standard measuring ranges:
1. 0-100 l/min
2. 0-200 l/min
3. 0-500 l/min
4. Other upon request

Class IIb medical device.

Remote alarm units for medical gases
compatible with HGM devices

On-plaster alarm unit

Dimensions (WxHxD)
171x121x55 (mm)

Under-plaster alarm unit

Dimensions (WxHxD)
171x121x45 (mm)

Function:

Reads from the master alarm unit all shared informations about medical gases. It shows exact copy of screen of master unit which is connected to. It has visual and audio alarm as same as alarm unit mounted in valve box. ALL devices are connected with use of FTP cables and RJ-45 plugs.

SYSTEM ADVANTAGES:
- limitless possibilities of expansion
- safe electrical supply - 12V DC
- power supply can be delivered to only one device and the whole network will be supplied
- one commonly available plug system RJ-45
- means to connect whole monitoring system to multiple central alarm units and/or PC and/or laptop
- compatible with 3rd party valve boxes with pressure switches or pressure sensors

Central alarm unit "S9"
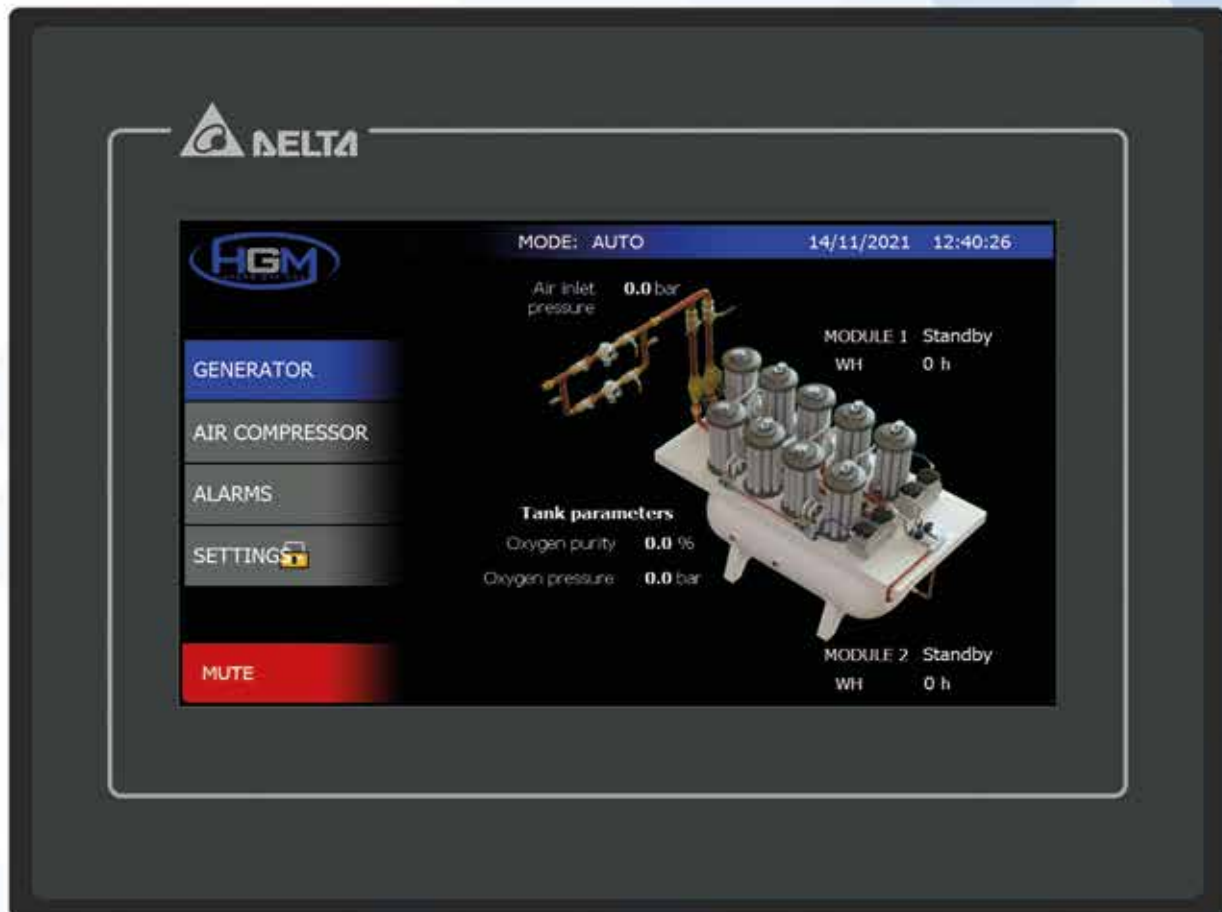
Central alarm unit allows to remote monitoring multiple devices at the same time. It shows conditions, alarm states from every device within the "HGM network" connected via BMS, via MODBUS RTU, MODBUS TCP/IP or via LAN/WIFI module.
Records gas consumption or pressure values as graph.

Each central alarm unit is programmed individually for our clients, depending on their needs and the network configuration.

UI is very user-friendly and intuitive to use on 7" LCD HQ touch display.

ALL devices can be connected with use of single Modbus converter.

Each alarm system can be equipped with SMS module, which allows to receive text message with alerts directly on mobile phone right after alarm appears.
Our SMS module can send messages up to 3 different numbers at the same time.

Dew point and carbon monoxide monitor
for compressed air systems

Pomiar punktu rosy

Dew point sensor

-OK- LIMIT -40°C 5ml
Dew point   <-40.0°C
Gas temp.   18.3°C
CO level   <5ml/m3

H₂O | CO | LOG | REL

WYCISZENIE
TEST

CE

HYDRO - GAZ - MED

LED indicator
● OK state
● alarm

Mute / test button

Function

To continuously monitor dew point, temperature and carbon monoxide level in compressed air. Built-in potential free relay and LOG module, that records events up to 10 days back.

MODBUS RTU.

Optional features: 4,3" LCD touch screen HMI panel, MODBUS TCP/IP

TECHNICAL DATA:

Standard		HGM	
Input	Measurement of dew point temperature in compreesed air and content of CO	SHT75, IT8, IQ5	
Output	Digital	Relay(HF49F) max 30V 3A DC / 48V 3A AC	
	MODBUS (optional)	9600 BAUD, 8 bits, 2 stop bits without parity control	
	LOG module	Last 250 entries, recording every 1 hour all alarms and confirmations	
Measuring range	Ambient temperature	5°C - 50°C	
	Dew point temerature	-70°C - 100°C	
	Carbon monoxide	0-2000 ppm	
AIR inlet pressure	Max 16 bar		
AIR inlet	6 mm (selflocking)		
Connections	Transmission	RJ-45 or STL-1550/4-3.5	
	I/O	STL-1550/4-3.5 / MC-1.5/2-5.08	
Power supply	230V AC		
Current	~25 mA	max 200mA	
Housing	PET		
Wokring temperature	5-50°C		
Storing temperature	-20-60°C		
Dimensions	Width	200 mm	
	Height	150 mm	
	Depth	80 mm	
Weight	~1.2 kg		

Gas monitoring

Oxygen monitor

Features:
- flow rate: according to demand acuuracy: +/- 3%
- pressure: 0-10 bar
- oxygen content: 0-100% with means of paramagnetic oxygen sensor accuracy 0.1%
- 6 potential free contacts (NO/NC to be set)
- MODBUS RTU, TCP/IP
- SMS notification system
- power supply: 230V, 50Hz

Purpose of this device is to continuously monitor parameters of medical oxygen according to EN ISO 7396-1:2016, European Pharmacopeia and HTM 02-01.
This device helps to control quality of oxygen delivered to the patients.

Gas analyzer

Features:
- required gas flow 10 lpm
- MODBUS RTU
- paramagnetic oxygen sensor;
- Infrared CO_2 sensor;
- Dew point sensor
- SO_2, NOx ,CO sensor
- MODBUS RTU module for BMS
- medium: medical oxygen and medical compressed air
- power supply: 230V, 50Hz

Purpose of this device is to continuously monitor parameters of medical compressed air and medical oxygen according to EN ISO 7396-1:2016, European Pharmacopeia, US Pharmacopeia and HTM 02-01.

Medical containers

In our rich offer, we have also turnkey solutons for stationary and mobile medical containers. We provide comprehensive services in the field of medical gas supply equipment for containers.
Every container is made to individual order and meets requirements of ISO 13485 and HTM 02 01.
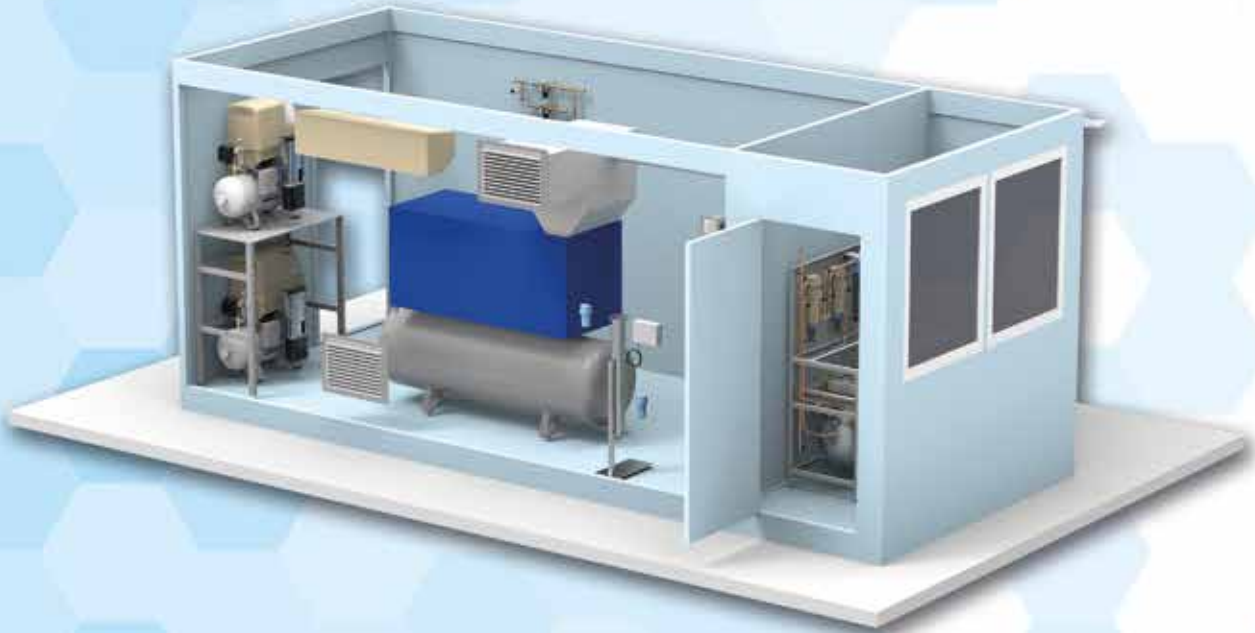
Medical containers

Oxygen generator

Oxygen generator

Compressed air system

Compressed air system

Cylinder filling station

High pressure compressors

Medical gas outlets

System
AGA
SS 875 24 30

System
DIN 13260-2

System
NF S 90-116

System
BS 5682

Gas outlet for bed-head units

Under-plaster

On-plaster

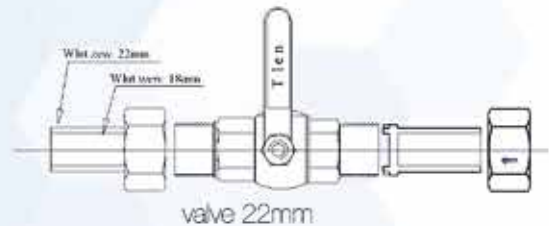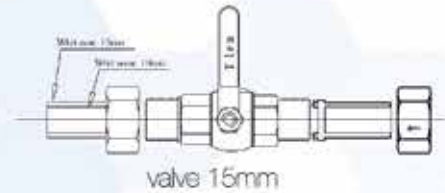For ceiling pendants
with hose connection

For compressed air driven surgical tools
AIRMOTOR

For AGSS, Venturi type

Ball valves for medical compressed gases

Próżnia

Dwutlenek węgla

Powietrze

Podtlenek azotu

Tlen

valve 15mm

valve 22mm

Function

Ball valves are used to shut-off parts of medical pipeline gas system. They allow to divide it to smaller parts, which simplifies, e.g.: maintenance works, repairs, extensions and periodic tests.

Ball valves types:

- ▶ Source shut-off valve;
- ▶ Raiser valve;
- ▶ Section shut-off valve;
- ▶ Maintenance valve;
- ▶ Service valve;
- ▶ Drainage valve.

Construction

Valve is made of brass housing, inside is a stainless steel ball which opens and closes by rotating the valve handle by 90-degrees. Valves have 2 external threads, equipped in soldering union connection with teflon seals.

Ball valves are **maintenance free**.
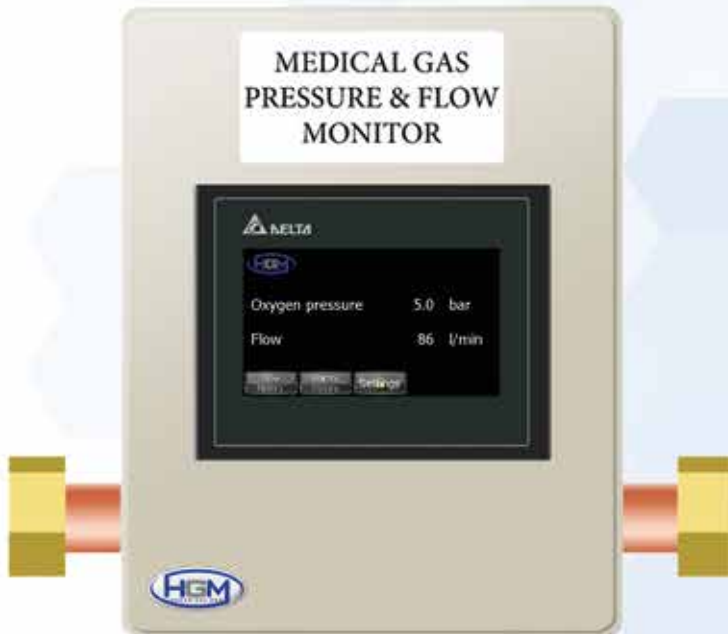
Each valve is labeled with gas name.

Max working pressure is 20 bar.

Available sizes for pipes:
15 mm, 18 mm, 22 mm, 28 mm, 35 mm, 42 mm, 54 mm.

Miscellaneous

Flow and pressure monitor

MEDICAL GAS
PRESSURE & FLOW
MONITOR

Oxygen pressure   5.0   bar
Flow   86   l/min

Features:

▶ measuring range 0-500 l/min
   accuracy: +/- 5%
▶ pressure: 0-10 bar
▶ MODBUS RTU
▶ power supply: 230V, 50Hz
▶ medium: compressed medical gases

Device that measures pressure in MGPS and/or consumption of gas in hospital, certain section, ward or room.
Can be installed at any place within medical gas pipeline system.
It has a history of total consumption and last 6 months.

Oxygen content in the environment

Sygnalizator gazów medycznych
Section alarm unit

21.07.

Koncentracja tlenu
w otoczeniu

WYCISZENIE

CE   HYDRO - GAZ - MED   TEST

Features:

▶ oxygen content measuring
   electrochemical oxygen sensor
   measuring range: <18% - >23%
   MODBUS RTU
   power supply: 230V, 50Hz

Electrochemical oxygen sensor is installed in cylinder supply room in order to detect oxygen leak.
Alarm unit can be installed at any place within 150m. Also it is possible to connect more alarm units in different places to one sensor.

Sample projects

Maintenance and emergency node

National Stadium in Warsaw - temporary COVID hospital

Oxygen concentrator system

Oxygen concentrator system

Medical air plant